NIC-EBS/L/V/i

Network managed G.703 to Ethernet Converter

Installation and Operation Manual

Code:C047b-004-00

HW: C047-100-20 C047b-100-21

HW: C049-100-20 C049-101-00

HW: C049-100-21 C049b-100-21 C049-101-01

SW:SC047-100-20

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Warranty

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General Safety Precautions

Transportation, Installation and Operation

Avoid excessive vibration and shocks.

Avoid contact with water, dust, and dirt.

Avoid excessive direct sunlight.

Ensure sufficient cooling.

Prevent loose items from falling into the device.

Main Powers

Disconnect the power cord before opening the device.

Use exclusively the supplied power supply the approved power cord.

The power plug must be plugged into a properly grounded receptacle. An improperly wired receptacle could place hazardous voltage on accessible metal parts of the device.

The mains supply must match the power specification of the device.

Replace blown fuses exclusively with fuses of the same ratings.

Do not work on the equipment during periods of lightning activity.

Technical Support

Before contacting with your support representative, please prepare to provide the complete serial number of the affected unit (refer to the according unit label).

Version Number

DATE	Version	Describe

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1 Chapter 1 Introduction

1.1 Overview

NIC-EBS/L/V/i is a type of high quality Ethernet-to-E1 converter. As an extended equipment of Ethernet, it could be used to connect two Ethernets transparently by PDH or SDH network and adapt to found remote network connection with a low cost.

NIC-EBS/L/V/i has 1 10/100Base-T Ethernet interfaces with auto-negotiation function on Full/Half Duplex and 10/100M speed.

NIC-EBS/L/V/i can learn the MAC address automatically that be connected and transmit just the datagram with the destination address in the remote Ethernet. So it can restrain the broadcast and advance the efficiency of the Ethernet. The transmitting speed is up to 2.048Mbps.

Twin using of NIC-EBS/L/V/i at the application is suggested.

1.2 Versions

The following versions of the unit are available:

- NIC-EBS/L/V/i/AC: a standalone unit, AC power supply.
- NIC-EBS/L/V/i/48: a standalone unit, -48VDC power supply.
- NIC-EBS/L/V/i/24: a standalone unit, +24VDC power supply.
- NIC-EBS/L/V/i/C: a plug-in card unit consisting of a front sub card and a back sub card for installation in the NIC-iRACK, 19-inch rack, holding up to 14 service cards.

1.3 Applications

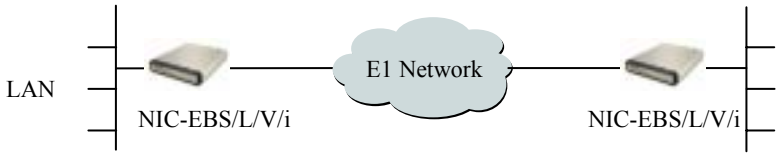


Figure 1-1 Point-to-Point application

1.4 Features

- Standard: IEEE 802.3, 802.3u, 802.1Q, 802.1x, ITU-T G.703, G.742, G.823
- Unframed Speed: 2048K Bit/s
- Support SNMP network management through central card unit fixed in NIC-iRACK
- E1 connector: 75Ω BNC/120Ω RJ-45
- Ethernet Interface: RJ-45 jack, 10 /100Base-T interface, auto MDI-X
- Auto negotiation or force mode on Full/Half Duplex mode and 10/100M speed
- Support VLAN trunk and flow control functions
- Loop test function: ANA, DIG, REM
- Power supply: 90~220VAC, -36~-72VDC, +18~+36VDC
- Card style or stand alone style

1.5 Physical Description

NIC-EBS/L/V/i is available as a standalone unit or as a rack-mount card for the NIC-iRACK.

1.5.1 Front Panel of Stand Alone Unit

Figure 1-2 Front Panel of Stand Alone Unit

The front panel includes 8 LEDs, which display the status of power, data flow, Ethernet link and E1 channel signal. Four front-panel push-buttons control 3 kinds of loopbacks and the display of remote Ethernet interfaces. For detailed description of the front panel, see *Chapter 3*.

1.5.2 Rear Panel of Stand Alone Unit

Figure 1-3 Rear Panel of Stand Alone Unit

The back panel includes a power connector (AC or DC),a power switch, 4 Ethernet interface connectors, S3 DIP-switch and a E1 line connector. The NIC-EBS/L/V/i rear panel is described in greater detail in *Chapter 2*.

1.5.3 Card Product

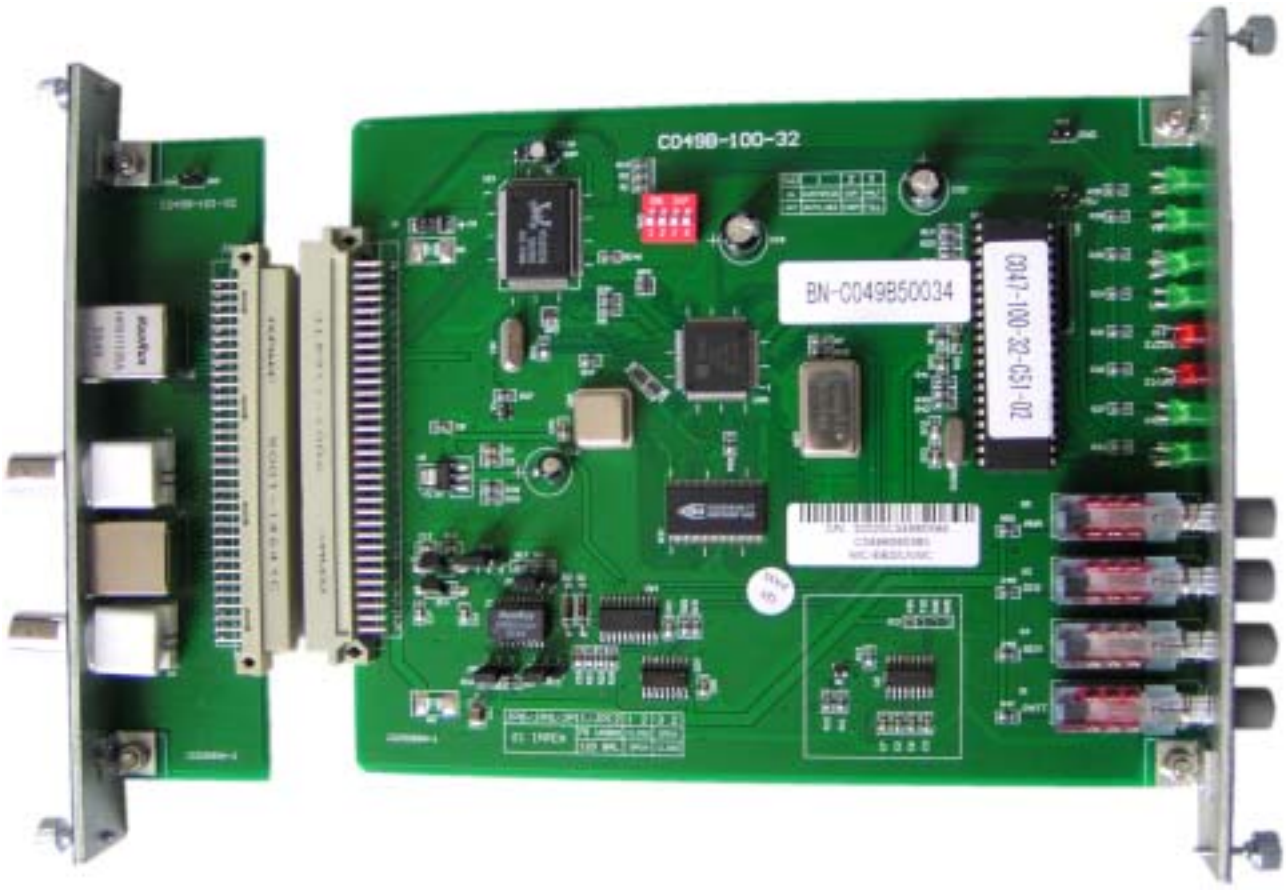


Figure 1-4 Card Unit

1.6 Technical Specifications

1.6.1 E1 Interface

Table 1-1 E1 interface specification

Standard	ITU-T G.703, G.704, G.823 and G.742
Framing	Framed/Unframed
connector	BNC male connector for 75Ω coaxial cables; RJ-45 jack for 120Ω twisted pairs
Code	HDB3
Baud rate	2048 Kbps ± 50ppm
Bit rate	Unframed: 2.048M bps Framed: N*64k （N<=31）
Impedance	75Ω for unbalanced (BNC, coaxial cable) 120Ω for balanced (RJ-45, twisted pair)
Receiving sensitivity	0~-18dBm
Transmit high voltage	2.37V± 10%, 75Ω; 3.00V± 10%,120Ω
Transmit low voltage	0 ± 0.1V
Transmitting distance	100m for coaxial cable, 300m for twisted-pair

Table 1-2 Output Jitter of E1 port

B1(20Hz~100KHz)	<0.08 UI
B2(18kHz~100KHz)	<0.05 UI

Table 1-3 Input Jitter of E1 port

Frequency(Hz)	10	20	63	130	500	1.2k	2.1k	3.7k	6.4k	11k	100k
Jitter (UI)	30.7	30	26.7	14.6	6.04	4.22	3.83	3.7	3.1	2.8	0.7

Table 1-4 Jitter Transfer characteristic of E1 port

Frequency(Hz)	20	45	65	130	260	500	1.2k	2.1k	100k
Jitter（UI）	-35.97	-42.71	-56.82	-64.43	-57.63	-57.50	-54.37	-55.12	-52.31

1.6.2 Ethernet interface

Table 1-5 Ethernet interface specification

Function	support VLAN trunk and flow control
Standard	IEEE 802.3 802.3u 802.1q
Interface	Ethernet and Fast Ethernet
Link Speed	10/100Mbit/s, Auto-Negotiation/force mode
Duplex Mode	force or Auto-Negotiation on Half / Full Duplex Mode
Connector	RJ-45 jack, auto MDI-X
Frame Length	64byte(least)/1536byte(most)
MAC Address Capacity	1K
MAC Address Update	5 Minutes

Table 1-6 LAN port working mode when cooperating with peripheral equipments

LAN port setting mode	*peripheral equipments setting mode*	*LAN port real working mode*	*peripheral equipments real working mode*	*Effect*
A/N	A/N	100M FD	100M FD	perfect
100M FD	100M FD	100M FD	100M FD	perfect
10M FD	10M FD	10M FD	10M FD	perfect
100M HD	100M HD	100M HD	100M HD	perfect
10M HD	10M HD	10M HD	10M HD	perfect
A/N	100M HD	100M HD	100M HD	good
A/N	10M HD	10M HD	10M HD	good
A/N	100M FD	100M HD	100M FD	unfitting
A/N	10M FD	10M HD	10M FD	unfitting
NOTE: A/N(auto-negotiation) FD(full duplex) HD(half duplex)				

Table 1-7 Throughput Test

Frame Size	**Passed Rate(%)**	**01 to 02 (pks/sec)**	**02 to 01 (pks/sec)**	**Total**
		100M -100M	100M -100M	
64	100.00	148810	148810	297620
128	100.00	84459	84459	168918
256	100.00	45290	45290	90580
512	100.00	23496	23496	46992
1024	100.00	11973	11973	23946
1280	100.00	9615	9615	19230
1518	100.00	8127	8127	16254
1536	100.00	8033	8033	16066

Table 1-8 Packet Loss Test

Frame Size	**Rate Tested(%)**	**01 to 02 (%)**	**02 to 01 (%)**	**Average**
		100M -100M	100M -100M	
64	100.00	0.000	0.000	0.000
128	100.00	0.000	0.000	0.000
256	100.00	0.000	0.000	0.000
512	100.00	0.000	0.000	0.000
1024	100.00	0.000	0.000	0.000
1280	100.00	0.000	0.000	0.000
1518	100.00	0.000	0.000	0.000
1536	100.00	0.000	0.000	0.000

Table 1-9 Latency Test

Frame Size	Rate Tested(%)	01 to 02 (us)-CT	Average (CT)	01 to 02 (us)-S&F	Average (S&F)
		100M -100M		100M -100M	
64	100.00	100.3	100.3	95.1	95.1
128	100.00	110.6	110.6	100.4	100.4
256	100.00	131.1	131.1	110.6	110.6
512	100.00	172.0	172.0	131.1	131.1
1024	100.00	253.5	253.5	171.6	171.6
1280	100.00	294.8	294.8	192.3	192.3
1518	100.00	332.9	332.9	211.5	211.5
1536	100.00	335.7	335.7	212.9	212.9

Table 1-10 Back- to-Back Test

Frame Size	Rate Tested(%)	01 to02 Burst Size (frames)	02 to01 (frames)	Total
		100M -100M	100M -100M	
64	100.00	297620	297620	595240
128	100.00	168918	168918	337836
256	100.00	90580	90580	181160
512	100.00	46992	46992	93984
1024	100.00	23946	23946	47892
1280	100.00	19230	19230	38460
1518	100.00	16254	16254	32508
1536	100.00	16066	16066	32132

1.6.3 Physical

Table 1-11 Physical specification

	Height	*Width*	*Depth*	*Weight*
Stand-alone	44 mm/1.73 inch	197 mm / 7.76 inch	230 mm / 9.06 inch	1.1kg
Card	144mm/5.67 inch	28mm/1.10 inch	250mm/9.84 inch	0.3kg
Package	280mm/11.02 inch	310mm/12.20 inch	80mm/3.15 inch	1.0kg

NIC-EBS/L/V/i/C Card Fit one slot in the NIC-iRACK card cage

1.6.4 Power Supply

Table 1-12 Power supply specification

	165~265 VAC, 50Hz, 5W, 1A fuse

	90~260 VAC, 50Hz, 5W, 1A fuse
DC Source	-48VDC source, -36~-72 VDC , 5W, 1A fuse
	+24 VDC source, +18~+36VDC , 5W, 1A fuse
Power Consumption	4W

1.6.5 Environment

Table 1-13Environment

Operation temperature	***Storage temperature***	***Atmospheric pressure***	***Humidity***
0 -50℃	-20~70℃	70~106Kpa	Up to 95%, non-condensing

1.6.6 MTBF

MTBF (Media Time Between Fault): 70,000 hours

2 Chapter 2 Installation and Setup

This chapter describes installation and setup procedures for the standalone and card units.
NIC-EBS/L/V/i is delivered completely assembled. It is designed for tabletop or 19-inch rack installation.
After installing the unit, refer to *Chapter 3* to assure normal operation.

Internal settings, adjustment, maintenance, and repairs may be performed only by a skilled technician who is aware of the hazards involved.
Always observe standard safety precautions during installation, operation, and maintenance of this product.

2.1 Site Requirements and Prerequisites

An AC-powered NIC-EBS/L/V/i/AC should be installed within 1.5m (5 ft) of an easily accessible grounded AC outlet. The outlet should furnish 100 VAC to 230 VAC.
A DC-powered NIC-EBS/L/V/i/DC unit requires -48/+24 VDC power source, which must be adequately isolated from the mains supply. In order to prevent a fire hazard, a suitable fuse should be installed in the VDC line.
Allow at least 90 cm (36 in) of frontal clearance for operating and maintenance accessibility. Allow at least 10 cm (4 in) clearance at the rear of the unit for signal lines and interface cables.
The ambient operating temperature of NIC-EBS/L/V/i is 0 to 50°C at relative humidity of 95%, non-condensing.

2.2 Configuration

This section describes how to configure NIC-EBS/L/V/i for a typical application.
The Figures and tables below illustrate the DIP switch location and provides details on the functions of the NIC-EBS/L/V/i DIP switches, and their default settings.

Make sure that the power cord is disconnected before performing the DIP switch settings.

NIC-EBS/L/V/i PCB sketch map with user-relevant components shown

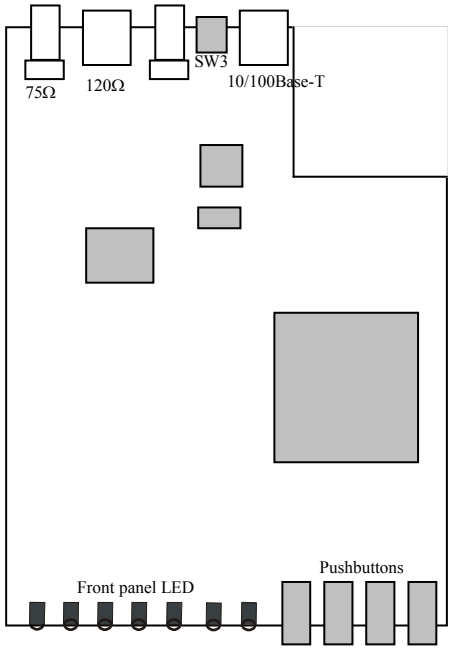


Figure 2-1 DIP Switches of Stand Alone Unit

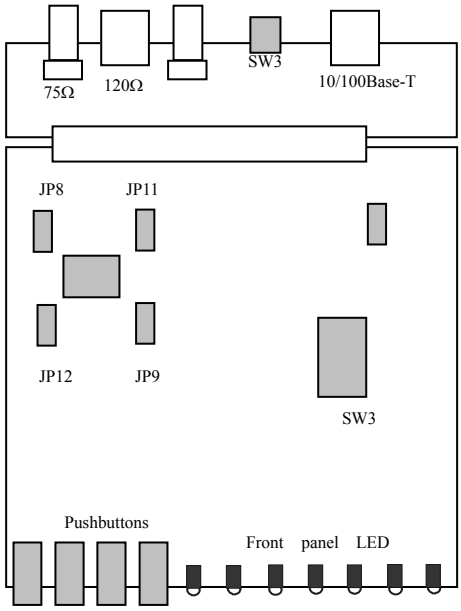


Figure 2-2 DIP Switches of Card Unit

For the stand alone unit, SW3 located in the rear panel is a group of jumpers for setting the status of the Ethernet interface and the impedance of E1 interface.

Table 2-1 SW3 of stand alone unit

S3	DIP3	DIP4	Function	Default Value
Ethernet interface	ON	ON	10M full	**DIP3=OFF**
	ON	OFF	100M full	**DIP4=OFF**
	OFF	OFF	Auto adapt	**auto**
S3	DIP1	DIP2	Function	**Default value**
E1 interface	ON	ON	75Ω unbalanced	**DIP1=OFF**

impedance	OFF	OFF	75Ω balanced	**DIP2=OFF**
	OFF	OFF	120Ω balanced	**75 ohm balanced and 120 ohm balanced**
NOTE: E1 signaling ground is joint with the power module ground in 75Ω balanced mode and disjoint in 75Ω unbalanced mode				

For card units, switches located in the front sub card, is for setting the status of the Ethernet interface and the impedance of E1 interface.

Table 2-2 Switches of card unit

S3	DIP1	DIP2	DIP3	Function	Default Value
Ethernet interface	ON	ON	ON	10M half	**DIP1=OFF**
	ON	ON	OFF	10M full	**DIP2=OFF**
	ON	OFF	ON	100M half	**DIP3=OFF**
	ON	OFF	OFF	100M full	**auto**
	OFF	OFF	OFF	Auto adapt	
JP8, 9, 11, 12	1, 2	2, 3	Function		**Default value**
E1 interface impedance	CLOSE	OPEN	75Ω unbalanced		**75 ohm unbalanced**
	OPEN	CLOSE	120Ω balanced		

2.3 Installation and Setup of Standalone Unit

2.3.1 To install NIC-EBS/L/V/i:

1. Determine the required configuration of NIC-EBS/L/V/i, according to your application, and set the DIP switches accordingly.
2. Connect the E1 line.
3. Connect the Ethernet interfaces.
4. Connect power to the unit.

2.3.2 Connecting the Interfaces

The Figure below illustrates the rear panel of AC-powered unit.

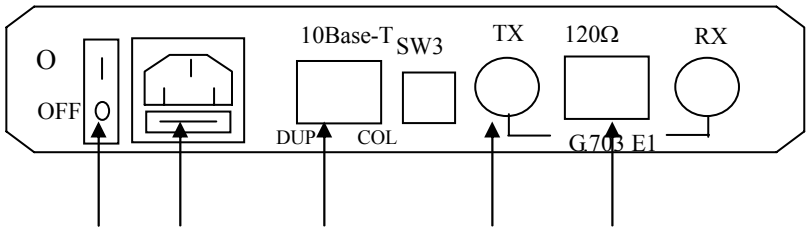


Figure 2-3 Rear panel of stand-alone unit (AC Version)

The Figure below illustrates the rear panel of DC-powered unit.

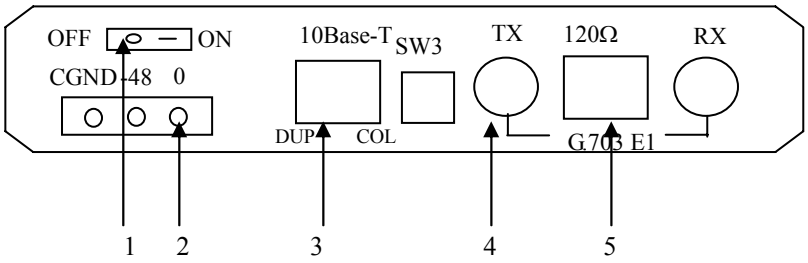


Figure 2-4 Rear panel of stand-alone unit (DC Version)

1) Power Switch
2) Power connector
3) Ethernet Connector (RJ-45)
4) G.703 75Ω Unbalance Connector (BNC female)
5) G.703 120Ω Balance Connector (RJ-45)

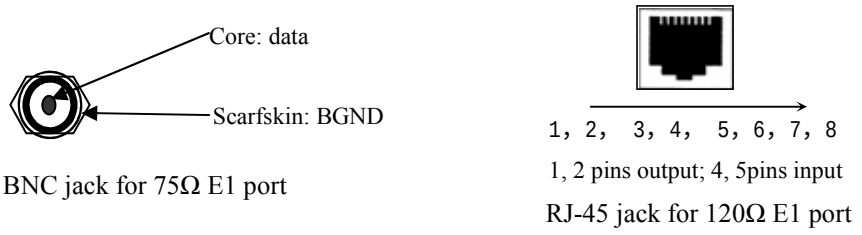
2.3.2.1 Connecting the E1 Interface

- **To connect the Balance interface:**

The unit provides a RJ-45 jack for E1 line 120Ω port. Plug the RJ-45 connector of the third party device into the RJ-45 jack for 120Ω E1 port. Please check the output (pin1, 2) and input (pin4, 5) lines in the RJ-45 jack of the unit. Refer to the supplement for pinouts details of RJ-45 jack.

- **To connect the BNC connectors:**

The unit provides a BNC female connector for E1 line 75Ω port. Use 75Ω coaxial cable with BNC male connector and connect it to the NIC-EBS/L/V/i E1 line 75Ω port. RX cables connect the TX ports and TX cables connect the RX ports. If the E1 port is connected and the corresponding "LOS" indicator in the front panel lights red, please exchange the cables. Use BNC 75Ω coaxial cable and connect it to the NIC-EBS/L/V/i E1 line 75Ω port.



BNC jack for 75Ω E1 port

1, 2 pins output; 4, 5pins input

RJ-45 jack for 120Ω E1 port

Figure 2-5 E1 connectors

2.3.2.2 Connecting the Ethernet Interface

The unit provides a 2Mbps-bandwidth channel with 4 Ethernet RJ-45 jacks. The Ethernet interfaces support auto-adjusting in 10/100M speed, auto-negotiation on Half/Full Duplex.
Use either a straight-through or cross-over UTP according to CAT5 EIA/TIA-568A/B for the LAN connection.
Refer to the supplement for the pinouts details.

2.3.3 Connecting the Power

To connect the unit to the power source, refer to the appropriate section below, depending on your version of the unit.

This unit should always be grounded through the protective earth lead of the power cable.

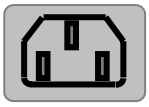
2.3.3.1 AC Power Connection

AC power is supplied to the unit through the 1.5m (5 ft) standard power cable terminated by a standard 3-prong plug. The cable is provided with the unit.

Before connecting AC power to this unit, the mains plug should only be inserted in a socket outlet provided with a protective earth contact. The protective action must not be negated by use of an extension cord (power cable) without a protective conductor (grounding). Interrupting the protective (grounding) conductor (inside or outside the unit), or disconnecting the protective earth terminal can make this unit dangerous.

- **To connect AC power:**

1. Connect the power cable to the power socket on the rear panel.
2. Connect the power cable to the mains outlet.
3. Turn on the mains switch of the unit.



2.3.3.2 DC Power Connection

- **To connect DC power:**

Certain DC-powered units are equipped with a plastic 3-screw terminal block located on the rear panel. Connect the wires of your power supply cable to the 3-screw terminal block, according to the voltage polarity and assembly instructions provided below.

➢ **Preparing and Connecting the Power supply wires**

1. Strip the insulation of your power supply wires according to the dimensions shown.
2. Place each wire lead into *VDC-IN* power input connector according to the voltage polarity mapping shown below (If a terminal is not already open, loosen its screw). Afterwards, tighten close the three terminal screws.

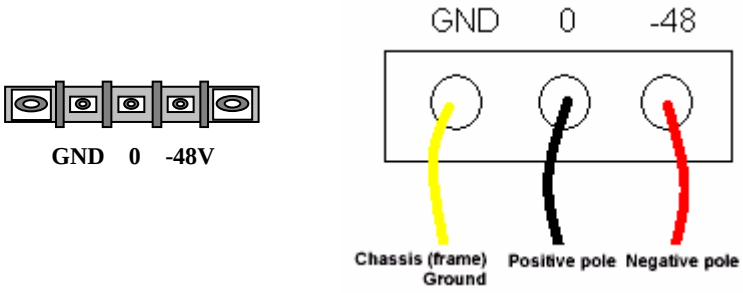


Figure 2-6 DC power connection

Reversing the wire voltage polarity can cause damage to the unit!
Always connect a ground (earth) wire to VDC-IN power input connector Ground terminal. Connecting the unit without a protective ground, or interruption of the grounding (for example, by using an extension power cord without a grounding conductor) can cause harm to the unit or to the equipment connected to it!

2.4 Installation and Setup of Card Unit

A card unit consisting of a front sub card and a back sub card should be fixed in the NIC-iRACK general rack cage. NIC-iRACK provides 13 slots (from the 1st to 13th slots) for service cards, 1 slot (14th slot) for either a management card or a service card, 2 slots (15th and 16th slots) for power modules. Please insert the front sub cards and the back sub cards by the rail into service slots of NIC-iRACK and match the front sub cards and the back sub cards in the same slot.

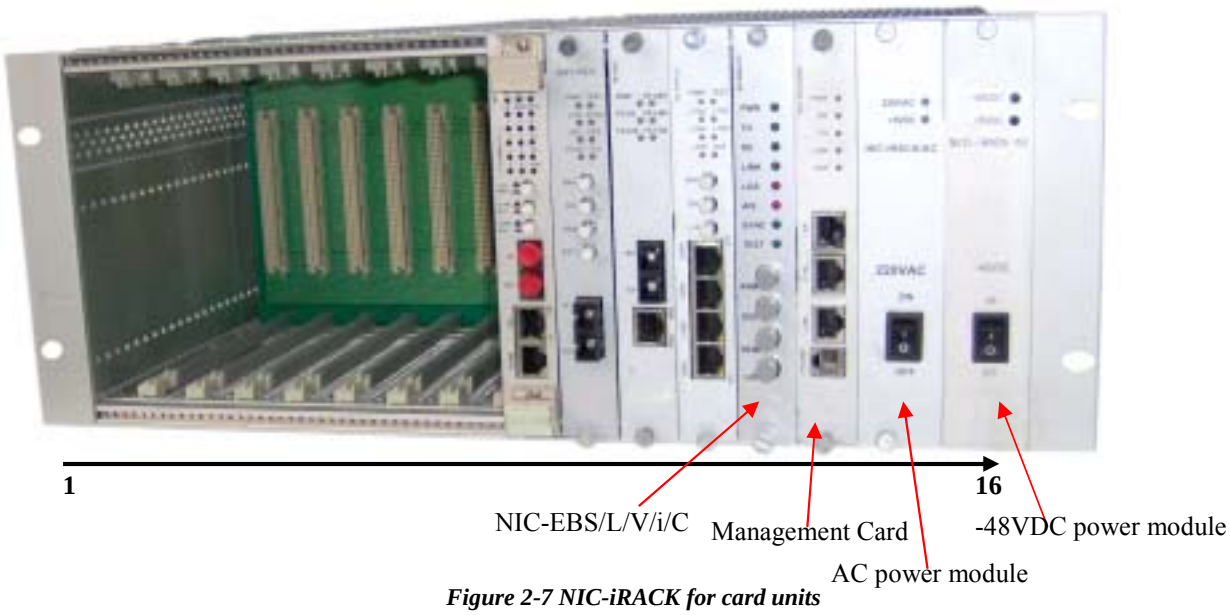


Figure 2-7 NIC-iRACK for card units

2.4.1 Installing the Card Unit into the NIC-iRACK Card Cage

1. Install the NIC-iRACK card cage in the 19-inch rack.
2. Insert the front sub card into one of the NIC-iRACK front slots.
3. Insert the back sub card into the corresponding back slots of the NIC-iRACK.
4. Push the card into the cage until it is fully inserted into the edge connector inside the rack.
5. Tighten the screws on front and back panel of the unit card.

2.4.2 Connecting the Interfaces

The back sub card of the card unit has 2 BNC female ports and 1 RJ-45 jack for E1 connections, and another RJ-45 jack for Ethernet interface connection. Please refer to proper section above for interface connections.

Figure 2-8 Rear panel of card unit

3 Chapter 3 Operation

This chapter provides operation and maintenance information for the NIC-EBS/L/V/i:

Installation procedures given in *Chapter 2* must be completed and checked before attempting to operate NIC-EBS/L/V/i.

3.1 Front Panel Indicators and Controls

All controls (push-button switches) and LED indicators are located on the front panel. Depress a push-button to activate (ON) the corresponding control. Release the push-button to deactivate (OFF) the control. The functions of each push-button and indicator are described as following.

Figure 3-1 Front Panel of Standalone Unit

Figure 3-2 Front Panel of Card Unit

Table 3-1 Front Panel Indicators and Controls

Name	Type	Function
PWR	**Green** LED	Normal Power Status
TD	**Green** LED	Data Transmit Indication: FLASHING when transmitting data
RD	**Green** LED	Data Receiving Indication: FLASHING when transmitting/receiving data
LINK	**Green** LED	Ethernet Link status Indication: ON when the Ethernet interface is connected normally; OFF when the Ethernet interface is disconnected
LOS	**Red** LED	E1 signal loss
AIS	**Red** LED	Ascending E1 line alarm Indication
SYNC	**Green** LED	Upstream E1 line alarm
TEST	**Green** LED	Unit is in the ANA/DIG loopback mode or in the BERT status
ANA	Pushbutton	The local loopback pushbutton, causes the local unit to loop its transmitter output

		back to its receiver
DIG	Pushbutton	The digital loopback pushbutton, causes the local unit to loop received data to its transmitter Data
REM	Pushbutton	Reserved
L/R	Pushbutton	BERT (Bit Error Rate Test) pushbutton, causes the local unit to send 511-bit test pattern to the E1 transmit port and to receive the test pattern from the loop line. If test is successful, the SYNC indicator lights up

3.2 Operating Procedure

3.2.1 Turning NIC-EBS/L/V/i On

NIC-EBS/L/V/i is turned on as soon as power is connected. When power is connected, the PWR indicator lights up and remains lit as long as NIC-EBS/L/V/i receives power.

NIC-EBS/L/V/i requires no operator attention once installed, with the exception of occasional monitoring of front panel indicators. Intervention is only required when NIC-EBS/L/V/i must be adapted to new operational requirements.

3.2.2 Normal Indications

If the local and remote NIC-EBS/L/V/i units are in operation and transmitting/receiving data, the following indicator conditions exist:

PWR: On

TD: Flashing or OFF

RD: Flashing or OFF

LINK: ON

LOS: OFF

AIS: OFF

SYNC: OFF

TEST: OFF

If the above LED indications are not obtained following initial power turn-on, check E1 or LAN interface connection.

3.2.3 Turning NIC-EBS/L/V/i Off

To turn off NIC-EBS/L/V/i, remove the power cord from the power source.

3.3 Loopback Test

This section contains procedures for performing system diagnostic tests for the unit. Use the test procedures provided in this section to:

- Verify normal system operation
- Isolate faulty equipment
- Identify other sources of system malfunction.

Tests are activated by the pushbuttons on the front panel and monitored via LED indicators. For description of the controls and indicators and their functionality, see the relative sections.

This product supports several types of loopbacks for evaluating the operation of the data system equipment and line circuits. Using these loopbacks, you can test communication between the attached equipment, internal circuitry of the local unit and remote unit.

Before testing the operation of the data system equipment and E1 link, ensure that all units are powered up and configured normally.

3.3.1 Local Analog Loopback (ANA)

The local analog loopback (ANA) test checks the performance of the local NIC-EBS/L/V/i unit, the local data terminal, and the connections between them. The test is performed separately at the local and the remote site. As shown in below, pressing the ANA pushbutton of unit A cause the unit A to loop its transmitter output back to its receiver for local device.

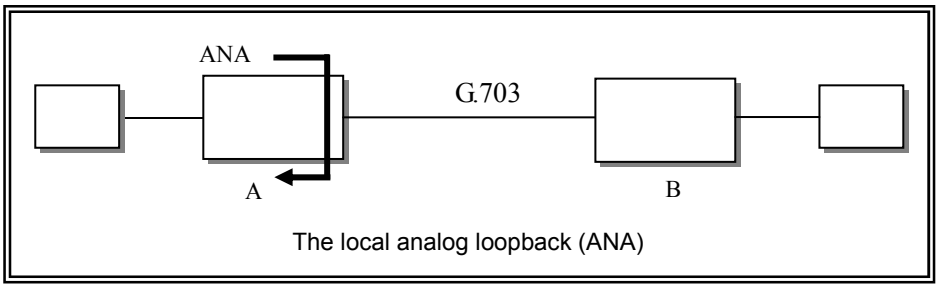


Figure 3-3 Local Analog Loopback

3.3.2 Local Digital Loopback (DIG)

The local digital loopback (DIG) test allows the operator at the remote end to check the performance of the local and remote unit, and their connecting lines. The DIG test loops the local unit, the received data back to the transmitter port for the remote unit. The local digital loopback test is equivalent to activating the remote loopback (REM) from the remote unit.

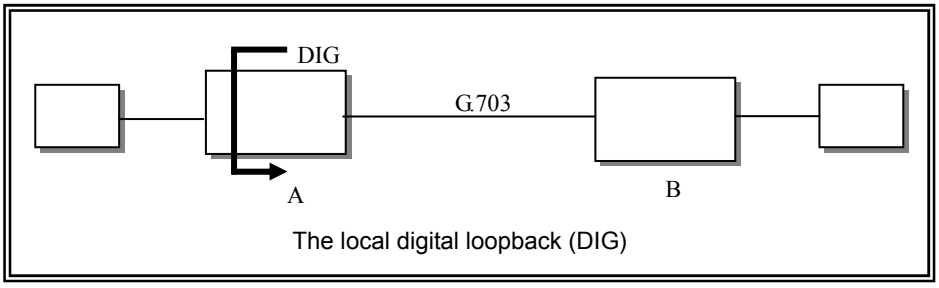


Figure 3-4 Local Digital Loopback

3.3.3 BER Test (L/R)

This unit has a built-in BERT circuit module consisting of a pattern generator and a pattern tester. This circuit works in conjunction with the V.54 diagnostic loops or the remote BERT to verify normal system operation and identify faulty equipment in the event of the system failure.

The pattern transmitted by the BER system of the local unit can be looped back for checking (unit self-test or single-unit test) or can be received by the remote unit (Two-BER test).

When testing together with the remote unit, the whole link between the local and remote units can be tested.

When the L/R button is pressed, BERT module continuously transmits the same 511-bit pattern to the E1 loop line and then receives the pattern to check. If the received pattern is right, the SYNC indicator will light up.

3.3.3.1 Unit Self-Test

The test verifies that the unit is operating correctly.

To activate the unit self-test:

1. Press the ANA pushbutton on the front panel. The TEST LED indicator lights up.
2. Press the L/R pushbutton.
   If errors aren't encountered, SYNC indicator will light up and LOS LED will be off.

3.3.3.2 Single-Unit Test

The test verifies that the unit and the E1 link are operating correctly.

To activate the single-unit test:

1. Make either a physical or logical loop on the E1 channel for the unit, or press the DIG pushbutton of unit B.
2. Press the L/R pushbutton of unit A. The TEST indicator of unit A lights up.
   If errors aren't encountered, SYNC LED of unit A will light up.

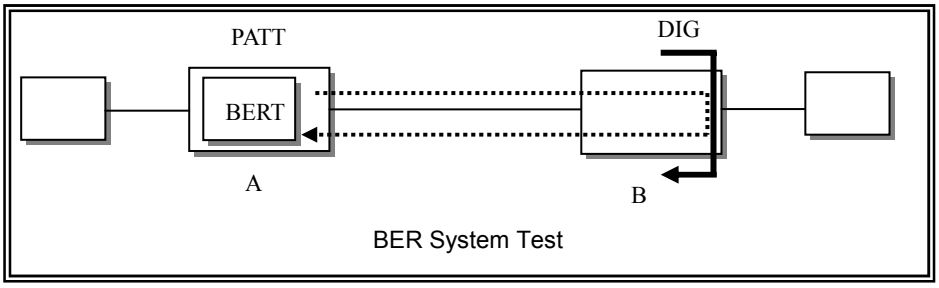


Figure 3-5 BER System Single-unit Test

3.3.3.3 Two-BER Test

The Two-BER test checks the link between the two units.

To perform the Two-BER test:

Press the L/R pushbuttons of both unit A and unit B. The TEST indicators of unit A and B light up.

If errors aren't encountered, the SYNC indicator of both unit A and unit B will light up.

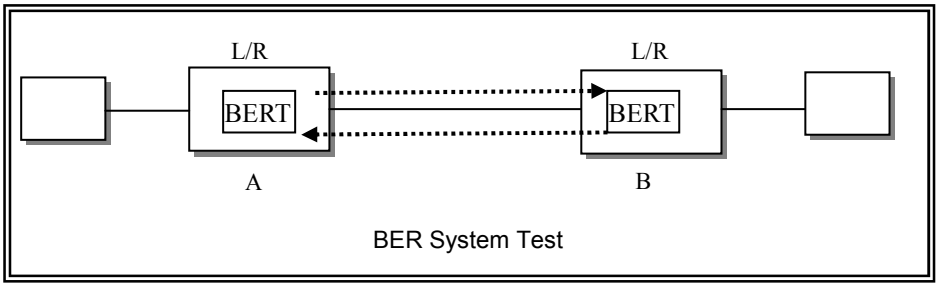


Figure 3-6 BER System Two-BER Test

3.4 SNMP Network Management

This function is only for card units fixed in the NIC-iRACK. When an SNMP management card is plugged in the 14th slot of NIC-iRACK, CCVIEW NMS is available for system monitor and configuration. Before login CCVIEW NMS the IP address setting by Hyper Terminal is necessary for SNMP management card.
Refer to the <CCVIEW user manual> for the operation details.

3.4.1 SNMP Management Topology

This product supports SNMP network management, and the card product needs be inserted to NIC-iRACK. The NIC-iRACK/MC network management card is necessary. The detail can be inquired of the <NIC-iRACK Installation and Operation Manual>. The network management system can manage the remote products via the local unit:

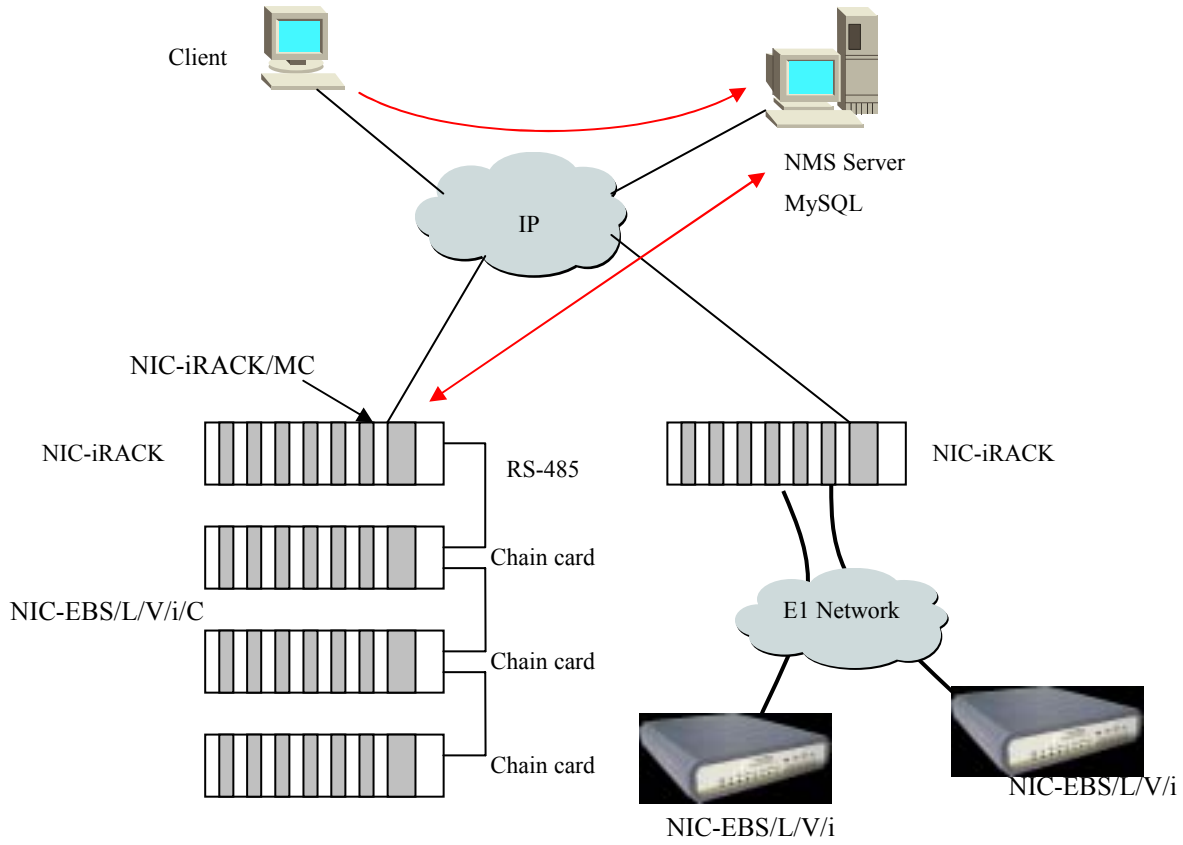


Figure 3-7 Network Topology

3.4.2 Main Function

- Local and remote status supervision: view all the LED and push-button status in the front panel.
- Local E1 loopback settings and BERT operation
- System log management
- Alarm management
- User account management

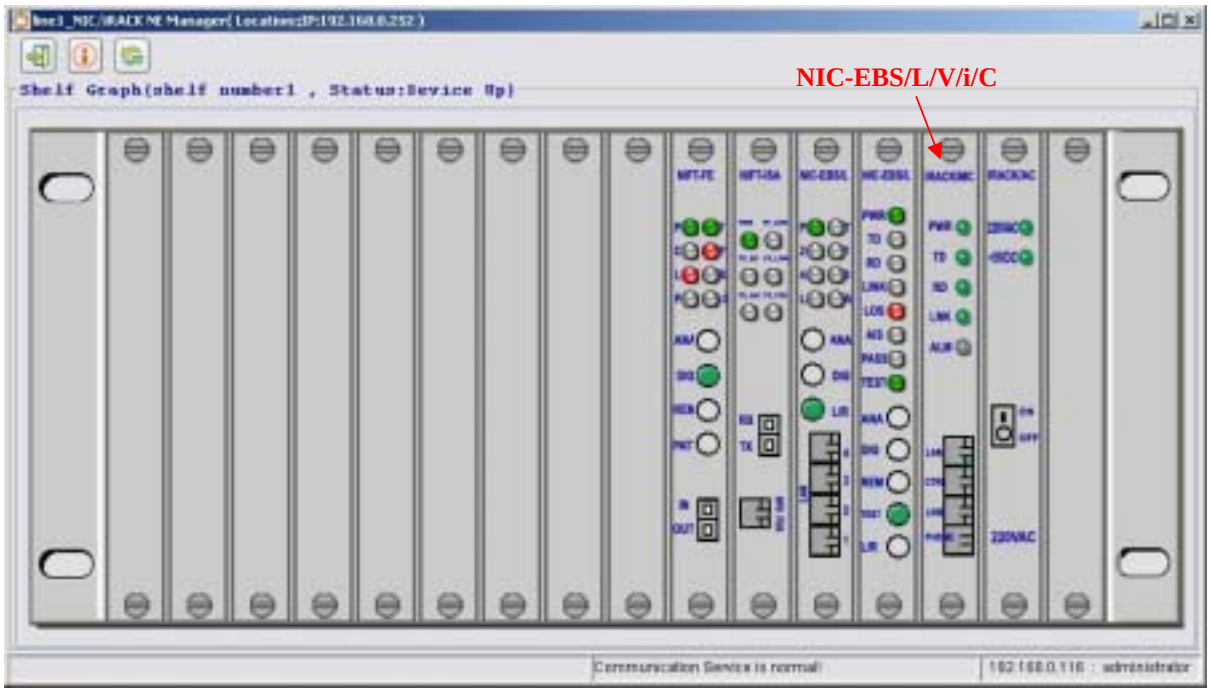
3.4.3 SNMP Management

When inserting the NIC-iRACK/MC card in the 14th slot of the NIC-iRACK and the NIC-EBS/L/V/i/C card in a service slot, the CCVIEW NMS can manage the local unit and the remote standalone unit that connected with it.

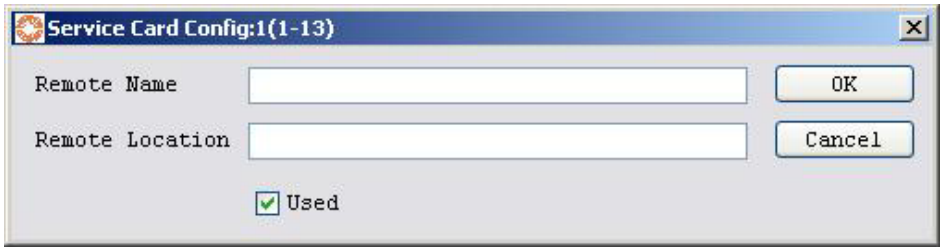
Click the right key of mouse at the right column in the CCview main interface, and click “Add Device” to enter the device adding dialog window. Input the equipment information in the dialog window. The name, label, IP address and type of the device is necessary. Please input the IP address of the device which is set by Hyper Terminal and select NIC-iRACK in the type list. And press “OK” to finish adding equipments.

The icon of new device will be shown in the right column. Double click that icon and the figure of the rack will be shown. If the rack chains with others racks, the button at the left of “shelf total” for “previous”, “next” that can be clicked to choosing relevant rack.

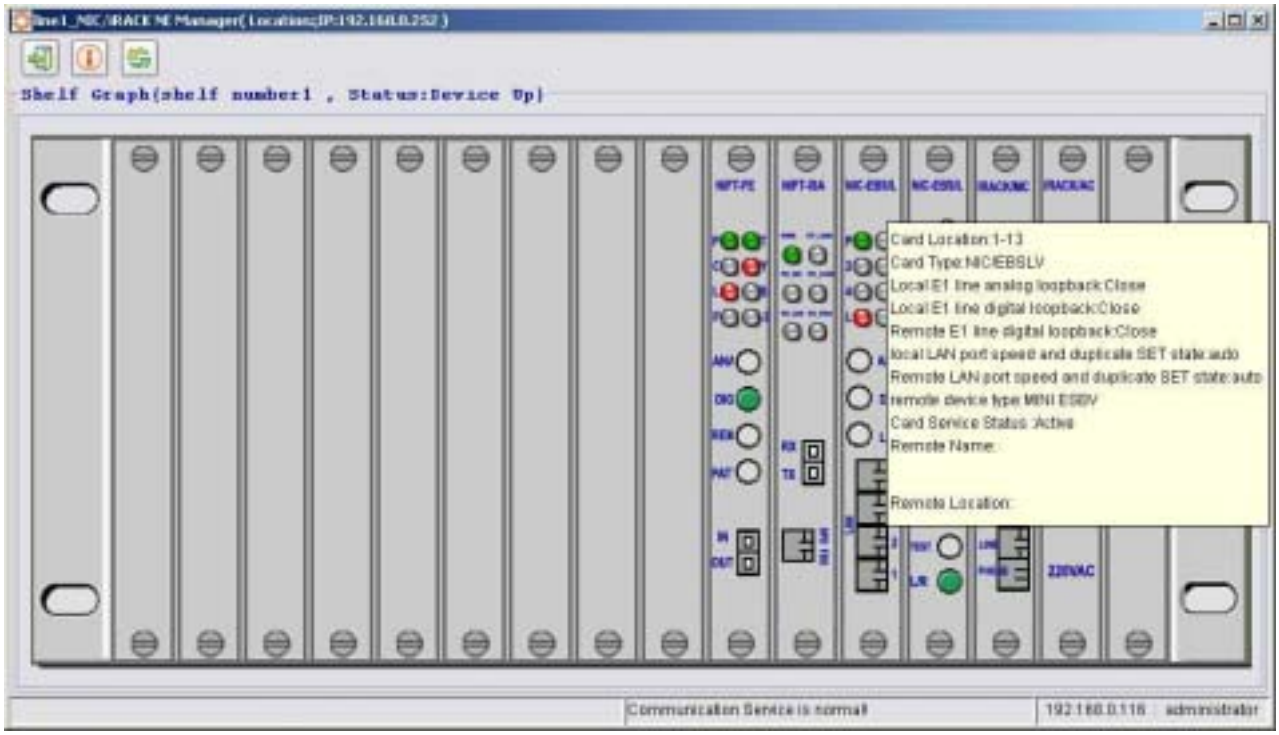
The network management system will display the real-time working status of units in the rack.



Double click the left button of the mouse at the blank place of the unit card, a window will pop up for adding some information of remote device.

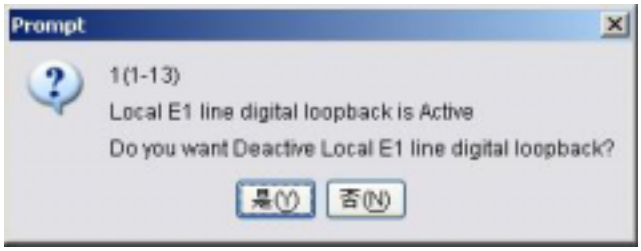


Move the cursor on the blank place of the unit card, the information of local and remote devices will be shown.


Shelf Graph(shelf number1 , Status:Device Up)
Card Location:1-13
Card Type:NIC/EBS/L/V
Local E1 line analog loopback:Close
Local E1 line digital loopback:Close
Remote E1 line digital loopback:Close
local LAN port speed and duplicate SET state:auto
Remote LAN port speed and duplicate SET state:auto
remote device type:MINI ESD/V
Card Service Status :Active
Remote Name:
Remote Location:
Communication Service is normal
192.168.0.116 : administrator

Double click the ANA button, the ANA prompt window will be shown, and select “affirm”, the unit will make the ANA loopback. If double click the ANA button again, the prompt window to cancel the ANA loop will be shown, and select “affirm”, the unit will cancel the ANA loop.

Double click the DIG button, the DIG prompt window will be shown, and select “affirm”, the unit will make the DIG loopback. If double click the DIG button again, the prompt window to cancel the DIG loop will be shown, and select “affirm”, the unit will cancel the DIG loop.



NOTE: If a hardware operation has been done on the unit, the software control of ANA and DIG button is invalid.

Double click the PATT button, the BERT prompt window will be shown, and select “affirm”, the unit will make the BER test. If double click the PATT button again, the prompt window to cancel the BER test will be shown, and select “affirm”, the unit will cancel the BER test.

If the L/R button on the card figure is gray, the remote unit is disconnected. If the L/R button is green, then the remote unit is available. Click doubly the L/R button, the working status of the remote device will be shown.

4 Chapter 4 Troubleshooting

This chapter provides troubleshooting instructions for this product.

Note

The installation procedures described in this chapter must be performed by authorized service personnel, aware of the hazards involved. The personnel in equipment troubleshooting must strictly observe all the safety precautions related to the installation of communication equipment.

Dangerous voltages that may cause death or injury on contact are present inside the NIC-EBS/L/V/i enclosures, and on line cards installed in the NIC-IRACK, when connected to power and /or to E1 lines. Do not open NIFT-I4ES enclosures and do not touch internal components when still connected to cables. Always disconnect all the cables connected to the system before disconnecting the earthing connection.

The unit contains components sensitive to electrostatic discharge (ESD). To prevent ESD damage, avoid touching the internal components, and before moving jumpers, touch the frame of and earthed equipment.

Table 4-1. Troubleshooting Procedure

No.	Symptom	Probable Cause	Corrective Actions
1.	Power indicator is off	Power supply is not sized up; The switch of the power supply is not open; The connect of the power supply is not tight; The power module is ;	Change the power supply; Open the switch of the power supply; Screw down the power supply;
2.	E1 LOS alarms	Coaxial or RJ-45 connector has trouble; The upstream E1 device connected directly with the NIC-EBS/L/V/i is powered off; The TX and RX connection of E1 interface is reverse; Self loop the TX and RX connectors with a coaxial cable of good quality. If the E1 LOS is still on, then the unit has a fault. Otherwise the connecting cable or the upstream E1 device connected directly with the NIC-EBS/L/V/i has a fault; The coaxial cables or twisted pairs are too long over 300 meters	Adjust the coaxial or RJ-45 connector Turn on the upstream E1 device connected directly with the NIC-EBS/L/V/i; Exchange the TX and RX connections; Contact with your support representative; Check the upstream E1 device connected directly with the NIC-EBS/L/V/i; Affirm the distance of the E1 cable is no longer than 300 meters;
3.	E1 AIS alarms	The upstream E1 line has a fault	Check the upstream E1 line and the corresponding devices
4.	LINK is OFF	The Ethernet port is not connected or not fixed tight; The Ethernet cable has a fault;	Connect the Ethernet port again and plug the RJ-45 connector into the RJ-45 jack tight;

		The RJ-45 connector has a fault; The twisted pair is too long over 100 meters	Change the Ethernet cable; Change the RJ-45 connector; Affirm the 1,2 pin of the RJ-45 is twisted, and the 3,6 pin is another twisted; Affirm the distance of the twisted pairs are no longer than 100 meters;
5.	Ethernet transmit has serious data package loss	The Ethernet port is not fixed tight; The Ethernet cable has a fault; The RJ-45 connector has a fault FULL/HALF duplex is not matching	Connect the Ethernet port again and plug the RJ-45 connector into the RJ-45 jack tight; Change the Ethernet cable; Change the RJ-45 connector; Affirm the 1,2 pin of the RJ-45 is twisted, and the 3,6 pin is another twisted; Check the duplex matching
6.	E1 interfaces have error codes	Impedance is not matching; E1 cables is too long; The E1 connector has a bad contact; 120Ω connect cable is not twisted; The unit is not grounded well; Coaxial or RJ-45 connector has trouble	Affirm the impedance of the E1 equipment is same as the optical multiplexer; Affirm the distance of the E1 cable is no longer than 300 meters; Adjust the E1 connector Affirm the 1,2 pin of the RJ45(120Ω) is twisted, and the 4,5 pin is another twisted; Grounding the unit again according to the electrician standard;
7.	The LED indicators are normal and the data transmission fails	Check the IP configuration of both sides and make sure that the Ethernets in both sides have the same Network address; The Ethernet or E1 port is not fixed tight	Reset the IP address of the devices in both sides and make sure that the Ethernets in both sides have the same Network address; Connect the Ethernet or E1 port tight again

5 Supplement Pinouts

G.703 120Ω RJ-45 Connecter Pinouts

Pin	Function
1	Transmit Data Output
2	Transmit Data Output
3	Not Conneted
4	Receive Data Input
5	Receive Data Input
6、7、8	Not Conneted

Ethernet RJ-45 Connecter Pinouts

Pin	Function
1	Transmit Data Output/Input
2	Transmit Data Output Input
3	Receive Data Input/ Output
4、5	Not Connected
6	Receive Data Input/ Output
7、8	Not Connected

RJ-45 Pinouts for Cat 5 EIA/TIA-568-A

Pin	Tip/Ring Color	Pair
1	White/Green	Pair 3
2	Green	Pair 3
3	White/Orange	Pair 2
4	Blue	Pair 1
5	White/Blue	Pair 1
6	Orange	Pair 2
7	White/Brown	Pair 4
8	Brown	Pair 4

RJ-45 Pinouts for Cat 5 EIA/TIA-568-B

Pin	Tip/Ring Color	Pair
1	White/Orange	Pair 2
2	Orange	Pair 2
3	White/Green	Pair 3
4	Blue	Pair 1
5	White/Blue	Pair 1
6	Green	Pair 3
7	White/Brown	Pair 4
8	Brown	Pair 4